

2.12 Binomial Theorem

Name _____ Date _____ Period _____

Expand the binomial using a calculator to find the binomial coefficients.

1. $(a+b)^4$

2. $(x+y)^7$

Expand the binomial using Pascal's Triangle to find the coefficients.

3. $(x+y)^3$

4. $(p+q)^8$

Evaluate the expression by hand (using the formula) before checking your answer on a grapher. Show work!

5. $\binom{9}{2}$

6. $\binom{166}{166}$

Find the coefficient of the given term in the binomial expansion.

7. $x^{11}y^3$ term, $(x+y)^{14}$

8. x^4 term, $(x-2)^{12}$

Use the Binomial Theorem to find a polynomial expansion for the function.

9. $f(x) = (x-2)^5$

10. $h(x) = (2x-1)^7$

Use the Binomial Theorem to expand each expression.

11. $(2x + y)^4$

12. $(\sqrt{x} - \sqrt{y})^6$

13. $(x^{-2} + 3)^5$

Practice Review

Factor

14. $9m^2 + 6mn + n^2$

15. $125x^3 + 27y^3$

Simplify

16. $\frac{x}{x-1} + \frac{3x-2}{x+2}$

17. $\frac{x}{x-3} \cdot \frac{x-5}{x^3-6x^2+5x}$